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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/539,939

06/17/2005

Marc De Vogelaere

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SIEMENS CORPORATION
INTELLECTUAL PROPERTY DEPARTMENT
170 WOOD AVENUE SOUTH
ISELIN, NJ 08830

EXAMINER

LEADER, WILLIAM T

ART UNIT

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1795

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/539,939	Applicant(s) DEVOGELAERE ET AL	
	Examiner William T. Leader	Art Unit 1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-37 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 19-37 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6/17/2005</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. The preliminary amendment filed on June 17, 2005 has been entered. Claims 1-18 have been canceled. New claims 19-37 are pending.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 19-35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 19 as written is unclear because it appears to recite that the material separation (crack, hole or notch, for example) is filled with an eddy-current probe. Based on the specification, it is electrolytically filled with a material. See page 2, lines 14-17 of the specification.

5. Claim 20 recites that the substrate is electrically connected to an electrode, substrate or layer. This is confusing because the substrate must be connected to a counter-electrode in contact with an electrolyte to perform electrolytic deposition. If the substrate or layer is connected to a second substrate or layer, the second substrate or layer must still function as an electrode so that there is a complete electric circuit. Claim 20 recites that the current "can be" varied over time. This limitation is not interpreted as requiring that the current be varied. It is not clear whether intends the claim to require the current to be varied.

6. Claim 22 recites that the parameters of the current are matched to the electrolyte. The meaning of this limitation is not clear. It is not clear what parameters are matched or how they are matched. How is it determined whether a parameter is matched to a particular electrolyte?

7. Claim 27 recites a material of a similar type to the material of the substrate or layer. The scope of this limitation is indefinite. It is not clear how it is determined if a material is "similar".

8. Claim 32 recites that a block is matched to a constituent of an alloy. It is not clear in what way the block is matched. How is it determined whether a block is matched?

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claims 19-35 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The recitation that the substrate is connected to an electrode is critical or essential to the practice of the invention, but not included in claim 19. Claim 19 as written requires galvanic filling but does not recited an electrode in contact with an electrolyte. Galvanic deposition without an electrode where the electrode and workpiece are in contact with an electrolyte is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

11. Claim 22 recited that parameters of the current are matched to the electrolyte. The disclosure does not set forth what parameters are included or how they are matched. Claim 32 recites that a block is matched to a constituent of an alloy. The disclosure does not set forth how this is done.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

14. Claims 19, 22, 24-28 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boucard et al (WO 03/006710) in view of DE 41 11 174.

15. The Boucard et al publication WO 03/006710 is in the French language. Reference will be made to the English language equivalent US 7,008,522. The Boucard patent is directed to repairing damaged parts. See the abstract. Material is filled into the area with damage by electrolytic deposition (separation). See column 6, lines 52-54.

16. Applicant's process in instant claim 19 differs from that of Boucard by reciting the use of an eddy-current probe. German patent publication '174 is directed to a method of increasing

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current density during electrocoating of a workpiece. As shown in the figure, device 3, which may be considered to be an eddy-current probe, is provided in the electrolyte in the region of the workpiece being coated. An AC current is applied to device 3 which causes the workpiece to vibrate. This is the same effect caused by applicant's probe. Note page 4, lines 4-10 of the specification which indicate that the substrate is mechanically excited by the probe, i.e. the probe generates oscillations in the substrate. Boucard discloses that an additional effect is that hydrogen bubbles are removed from the workpiece. See the English language abstract.

17. The prior art of record is indicative of the level of skill of one of ordinary skill in the art. It would have been obvious at the time the invention was made to have utilized a probe of the type disclosed by German publication '174 in the process of Boucard because current density would have been increased and bubbles would have been removed.

18. With respect to claim 22, it would have been obvious to have chosen deposition parameters to provide good results with the electrolyte being used. With respect to claim 24, German publication '174 discloses that the AC current is applied to the probe at variable frequencies. See the English abstract. With respect to claim 25, it would have been obvious to have chosen a frequency to cause deposition in the defect being filled. With respect to claims 26, 27 and 33, Boucard discloses repairing a MCrAlY article where M is nickel or cobalt (column 1, lines 30-31). The underlayer may be refilled with MCrAlY (column 6, lines 45-51). With respect to claim 28, the zone to be repaired is scoured to remove the damaged portions of the underlayer (column 3, lines 47-50). Removing material would widen the opening.

19. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boucard et al (WO 03/006710) in view of DE 41 11 174 as applied to claims 19, 22, 24-28 and 33 above, and further in view of Takeuchi et al (6,024,861).

20. Boucard does not show the apparatus used for carrying out the electrolytic deposition. The Takeuchi et al patent is directed to a method for treating a workpiece with a damaged portion 12 (a material separation) in a surface coating 4. See figures 1 and 4. The apparatus includes a power source 9 connected to the workpiece to be treated 5 and a counter electrode 6. It would have been obvious at the time the invention was made to have provided a power source and a counter-electrode in the electrolytic deposition process of Boucard as shown by Takeuchi et al because these elements are conventional and are necessary for electrolytic treatment be performed.

21. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boucard et al (WO 03/006710) in view of DE 41 11 174 as applied to claims 19, 22, 24-28 and 33 above, and further in view of GB 1521130.

22. As shown by the abstract, the '130 publication discloses the use of a piezoelectric transducer to provide ultrasonic radiation to an electroplating bath. The transducer is considered to be an ultrasonic probe as recited in instant claim 23. It would have been obvious at the time the invention was made to have utilized an ultrasonic transducer in the process of Boucard et al as taught by GB '130 because agitation of the electroplating bath would have been provided and electrolyte constituents more evenly distributed in the bath.

23. Claims 21 and 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boucard et al (WO 03/006710) in view of DE 41 11 174 as applied to claims 19, 22, 24-28 and 33 above, and further in view of de Hek (4,436,591).

24. The de Hek patent is directed to the electrolytic deposition of a metal onto a workpiece. The waveforms of different types of applied electric current are shown in figures 6a-6d. Figure 6a illustrates pulsed current as recited in instant claim 21. Figure 6b shows current with both positive and negative pulses as recited in instant claim 29. Figure 6d shows current with a repeated sequence of two different blocks. This current is considered to meet the limitation of instant claims 30-32. It would have been obvious at the time the invention was made to have utilized pulsed current as shown by de Hek in the process of Boucard because it results in efficient deposition of metal on a substrate.

25. Claims 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boucard et al (WO 03/006710) in view of DE 41 11 174 as applied to claims 19, 22, 24-28 and 33 above, and further in view of Lashmore et al (5,158,653).

26. The Lashmore et al patent is directed to the deposition of a graded coating as recited in instant claim 34. As shown in figure 5, pulse current is applied in which a base current is superimposed on the current pulses and interpulse periods. It would have been obvious to have utilized the pulsed current shown by Lashmore et al in the process of Boucard et al because a graded deposit with improved material properties would have been formed.

27. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi et al (6,024,861) in view of DE 41 11 174.

28. Takeuchi et al is taken as above to show electroplating apparatus which includes a vessel containing an electrolyte, a voltage source and an electrode. Claim 36 differs from Takeuchi et al by reciting an eddy-current probe. The '174 German patent publication is taken as above and discloses an eddy-current probe. It would have been obvious to have included a probe as taught by the '174 publication in the apparatus of Takeuchi et al because current density would have been increased and bubbles would have been removed from the surface of the workpiece.

29. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi et al (6,024,861) in view of DE 41 11 174 as applied to claim 36 above, and further in view of GB 1521130.

30. Patent publication GB '130 is taken as above to show the use of an ultrasound probe in an electroplating bath. It would have been obvious to have included an ultrasound probe in the bath of Takeuchi et al because agitation of the electroplating bath would have been provided and electrolyte constituents more evenly distributed in the bath.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William T. Leader whose telephone number is 571-272-1245. The examiner can normally be reached on Mondays-Thursdays and alternate Fridays, 7:30-4:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

WL

William Leader
September 30, 2007



SUSYTSANG-FOSTER
PRIMARY EXAMINER